GRID Logistics, Inc. Proposed Pilot Project – Response to Governor Brown's Executive Order B-32-15

The project proposed herein is massive and atypical. For project orientation purposes, viewing the 10-minute video, "The GRID Logistics Story", at www.gridinc.biz, is recommended.

Contacts: David J. Alba, 626-513-3650, d_alba@gridinc.biz
Richard I. Mueller, P.E., 909-226-3286, rmueller@gridinc.biz

Project Title: GRID Ship Berth Pays for 137-Mile Freight Container Tunnel

Project Location: 2-mile-long patented ship berth system, known as the "SuperDock™", is proposed to be built in Long Beach Harbor of San Pedro Bay. The ½-mile long landside end of the SuperDock™ will include 24 Class 1 railroad sidetracks, 12 each for Union Pacific (UP) and Burlington Northern Santa Fe (BNSF), to provide on-dock container transfer from ship to railroads feeding the Alameda Corridor. The SuperDock™ will also feed a 15-feet-diameter tunnel with containers loaded on ordinary intermodal well-style railroad cars, each fitted with a magnet for movement by linear electric motors. The tunnel will extend approximately 137 miles from San Pedro Bay north under I-110 to Los Angeles, then east under CA-60, CA-57, and I-10 to Ontario, then south under I-15 to Corona, then west under CA-91, northwest under I-5, south under I-605, west under I-105, and returning to San Pedro Bay south under I-710. Seven feeder terminals for the freight pipeline will be located in industrial areas near freight consolidation warehouse clusters. See attached Project Summary Sheet for map of tunnel and approximate feeder terminal locations. Last mile delivery between the feeder terminals and warehouse destinations will be performed by trucks powered by alternative fuel such as electricity or natural gas.

Executive Summary: GRID Logistics, Inc. (GLI) has developed a detailed business plan (attached) presenting the macro-economic changes occurring in the international shipping business, their effects on shippers and ports, and a privately-financed infrastructure project that can secure continued shippers' preference for berthing in San Pedro Bay, regardless of the expansion of the Panama Canal, while significantly reducing negative impacts of freight movement on surrounding citizenry and addressing nearly all freight-related issues raised by the environmental justice organizations. The "heart" of the project is the SuperDock™, a patented, vetted, ship berthing system that will be able to reduce ship turn times by 70%. Because San Pedro Bay freight is nearly evenly split between freight moved by rail to/from the US interior and freight moved by truck to/from Southern California, GLI recognized that for San Pedro Bay freight volumes to grow, an elegant alternate to highway freight trucking is required. After several iterations, use of an automated, electrically-powered, single-direction freight tunnel circuit was selected. Evaluation of construction costs shows the SuperDock™, freight tunnel, and feeder terminals can be privately financed, built without taxpayer financing, provided the right-of-way for the freight tunnel under the highways is provided free of charge.

The pilot project proposed for response to Executive Order B-32-15 is to evaluate the GLI project proposal against all other project proposals for freight movement optimization in the Southern California Association of Governments' (SCAG) 2012-2035 Regional Transportation Plan, as amended. The format recommended for the pilot project is to evaluate the GLI project versus the SCAG projects in a Challenger-Defender mode. Aspects of the projects to be evaluated should include the following.

- cost to taxpayers
- optimized time to build completion
- pollution mitigation effects
- highway congestion mitigation effects

- resultant reduction in highway maintenance costs
- disturbance of current freight movements during construction
- resulting competitiveness of ports
- public acceptability

Included under the aspect "optimized time to build completion" should be an evaluation of permitting processes required at the state, local, and federal levels and how they can be optimized. Having a known and optimized timeline for permitting and construction will be vital for attracting private investors so the investors are able to estimate return on investment in the infrastructure with reasonable conservatism.

Detailed description of how the pilot project idea components will incorporate advanced technologies, alternative fuels, freight and fuel infrastructure, and local economic development; and advance goals of improving freight efficiency, transitioning to zero-emission technologies, and increasing competitiveness of California's freight system.

The proposed pilot project is only to evaluate the GLI project versus the SCAG projects in a Challenger-Defender mode. However, assuming the results of such an evaluation demonstrate the superiority of the GLI project over those included in the SCAG Regional Transportation Plan, the following paragraphs present some of the breadth of improvements the GLI project will offer that positively respond to the challenges outlined in the Governor's Executive Order.

Incorporation of Advanced Technologies:

The GLI project is a new combination of existing technologies. The SuperDock™ is a newly patented structural format for loading/sorting/unloading ISO freight containers for ships, trains, and trucks. The underlying concept for the SuperDock™ was to develop a mechanism for feeding a holistic freight movement system rather than to optimize a single segment of the freight system in silo style, with no regard to impacts on other parts of the system. The functionality of the SuperDock™ has been thoroughly vetted by logistics professionals at BNSF and UP railroads. The efficiency and just-in-time connectivity of the SuperDock™ with the freight tunnel will reduce populations of port-related trucks on sourthern California's freewasy by approximately 70%. Port consolidation will allow up to 2500 acres of port land currently used to store containers to be freed for new port developments. Container scanning technologies will be incorporated so that 100% of containers moved through the SuperDock™ will be scanned, versus approximately 5% of containers currently scanned in San Pedro Bay.

Sorting of containers will utilize existing sorting programs, optimized for the SuperDock™/freight tunnel application and for rapid loading/unloading of container ships without overstressing the hulls. Development of these computerized applications is not required for the pilot project Challenger-Defender evaluation.

Movement of container cars through the freight tunnel will be accomplished by linear electric motors, for which the only moving parts are the container cars. Linear electric motors are commonplace for people-movers, amusement rides, and similar applications, and are known for their remarkable reliability. Since the tunnel is for freight only, the cost adders for ventilation, lighting, and personnel safety systems that are necessary for subway systems are not required. Power will be required to move the container cars to higher elevations, and power will be recovered in the system as the cars are circulating back to lower elevations.

The final connection in the GLI project is to move containers between the freight tunnel feeder terminals and local warehouses. Placement of the feeder terminals near the warehouses will

reduce the length of the average truck trip to approximately 4 miles, allowing use of new-technology electric or natural gas trucks.

New technologies in tunneling construction will be used at fault crossings to best assure the freight tunnel can move with the fault and survive a major earthquake without leakage. Also, early warning earthquake detection technologies developed in Japan that successfully prevented derailing of high-speed trains during the Great East (Fukushima) Earthquake will be employed for the GLI system to best assure no derailments during seismic events.

A critical element for maximizing throughput of the SuperDock™ system will be working with US Customs, Homeland Security, and other departments to assure government approvals for freight movement can match the speed of the new container movement system.

Incorporation of Alternative Fuels, Freight and Fuel infrastructure; Transitioning to Zero-Emission Technologies:

Trucks currently serving San Pedro Bay are diesel, resulting in significant NOx, PM10 and PM2.5 concentrations along many highways in the greater Los Angeles area. The SuperDock™ and freight tunnel will be powered by electricity, hence removing a major linear diesel source of air pollution and addressing those critical health issues raised by environmental justice organizations. It is the goal of GLI to coordinate with electricity producers to develop green electricity sources to power the GLI system.

It is possible the freight tunnel may provide a route for new electric power lines or for gas lines that may be needed should natural-gas-powered trucks be preferred for last-mile connections between freight tunnel feeder terminals and area warehouses. Additionally, natural gas distribution stations can be located at the feeder terminals to serve both the natural gas trucks used for GRID Logistics' deliveries and for direct sale for personal trucks and automobiles powered by natural gas.

Effects on Local Economic Development; A***dvancing Goals of Improving Freight Efficiency; Increasing Competitiveness of California's Freight System***:

Implementation of the SuperDock™, including the landside ½-mile of 24 parallel Class 1 rail tracks, will consolidate container transfer between ships and trains on-dock. This will remove the need for the lawsuit between the City of Long Beach and the City and Port of Los Angeles associated with BNSF's Southern California International Gateway (SCIG) since virtually all container transfers will occur on-dock. Land currently reserved for SCIG will be available for either railroad maintenance or other economic development. An approximate 70% reduction in truck drayage to and from San Pedro Bay will be replaced by containers moving underground in the freight tunnel. This will significantly reduce congestion on area freeways and make all other surface transportation easier and less costly. CalTrans will realize significantly less wear on its infrastructure and therefore have more funds available for alternate projects.

During construction of the $18B GLI project, an estimated 51,000 construction-related jobs will be created. Since the construction will be almost totally separated from all current freight transportation modes, minimal negative effects will result on existing highway, rail, and ship traffic. Following construction, an estimated 2500 acres of San Pedro Bay property currently used for container storage will likely be made available for new economic development. Also, a new freight system, the freight tunnel, will be available for non-port-related area trucking. Some increase in jobs associated with the freight tunnel feeder terminals will also occur.

The SuperDock's much faster ship turn times, reduced by 70%, and Class 1 train turn times, reduced by 90%, will make San Pedro Bay the most preferred port on the west coast of the Americas. Greater utilization of rail rolling stock and new Post-Panamax ships will reduce total shipping costs through San Pedro Bay and make shipment through San Pedro Bay significantly faster and as cost competitive as possible against shipments through the Panama Canal to the US Gulf and East Coast. This will result in increasing volumes moved through San Pedro Bay, increasing payments to the San Pedro Bay Cities, and a net increase of ILWU and other port jobs compared to current employment numbers.

Estimated Cost for Implementation and Existing Funding Commitments, Including Any Funding Limitations or Constraints, by Stakeholder and Amount:

GLI's economic evaluation indicates the GRID Logistics' SuperDock™, freight tunnel, and feeder terminal project can be privately financed provided the rights-of-way are provided free of charge. To date, interest in the GLI project from public-private partnership contractors and other logistics parties has been limited by their expectation that neither the State of California nor the San Pedro Bay ports would support such a comprehensive and challenging infrastructure project, regardless of its merits. Given the Governor's Executive Order, that expectation now has a basis to change.

Funding for the Challenger-Defender evaluation of the GRID project is expected to cost approximately $3M, based upon a previous budget developed by California State University at Northridge, (CSUN). Given that the GRID Logistics developers have already worked with CSUN engineering college staff while preparing an application for a TIGER grant, we recommend that utilizing CSUN to perform the Challenger-Defender evaluation is likely to save both time and money.

Timeline:

The proposed Challenger-Defender evaluation pilot project is expected to take from 12 to 18 months.

Timeline for actually implementing the GRID Logistics' project will depend in large part on the efficiency with which oversight agencies can streamline their permitting processes. Once availability of rights-of-way for the project are assured, project design completed, permits secured, and project financing secured, total construction time is expected to take 6 years.

Means for Measuring Progress Toward Meeting Goals Over Time:

Since the proposed pilot project is actually a study to identify if the GRID Logistics project is, in fact, a preferred alternative to all those currently in the SCAG Regional Transportation Plan, the agent selected to perform the study would have to identify a sequence of milestones.

Should the GRID Logistics project be allowed to proceed, it will be a private, profit-oriented business targeted to complete construction as fast as safety, design and inspection will allow. The project owners will be responsible for defining, measuring and exceeding their milestone goals.

Description of the Potential Roles Each of the Interagency Partners Could Provide to Support the Project's Implementation:

An additional action item that would facilitate the expeditious implementation of the GRID Logistics project would be for the local, state, and federal agencies that will have oversight of the project to develop a streamlined permitting process.